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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,087	10/04/2005	Dongping Tao	434B-291	4135
1009 7590 KING & SCHICKLI, PLLC 247 NORTH BROADWAY LEXINGTON, KY 40507				
EXAMINER				
TAL XIUNYU				
ART UNIT		PAPER NUMBER		
1795				
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05/26/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/552,087

Applicant(s)

TAO ET AL.

Examiner

Xiuyu Tai

Art Unit

1795

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 22-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The affidavit filed on 2/13/2009 under 37 CFR 1.131 is sufficient to overcome the 102(e) reference of Yan et al (U.S. 6,797,908).
2. The amendment filed on 2/13/2009 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: claim 3 is amended to "the chamber is generally annular". The instant specification supports the description of "the chamber is generally cylindrical (page 3 line 14)" and "the charging chamber 14 has an annular space (page 5 line 25-27)". Figure 2 shows that the rotor 18 is mounted within the cylindrical chamber and the annular space in the charging chamber 14 is created between the rotor 18 and the cylindrical chamber. However, the instant specification does not support the description of "a rotor mounted in the chamber" and "the chamber is annular" as cited in amended claim 3 because the drawing shows that the rotor 18 is mounted co-axially with the cylindrical chamber to create an annular space that is served as the charging chamber 14, but the rotor 18 is not mounted in the annular space of the charging chamber 14.

Applicant is required to cancel the new matter in the reply to this Office Action.

Response to Arguments

3. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4. Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The instant specification supports the description of "the chamber is generally cylindrical (page 3 line 14)" and "the charging chamber 14 has an annular space (page 5 line 25-27)". Figure 2 shows that the rotor 18 is mounted within the cylindrical chamber and the annular space in the charging chamber 14 is created between the rotor 18 and the cylindrical chamber. However, the instant specification does not support the description of "a rotor mounted in the chamber" as cited in claim 1 and "the chamber is annular" as cited in amended claim 3 because the drawing shows that the rotor 18 is co-axial with the cylindrical chamber to create an annular space, not within the annular space of the charging chamber 14.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. As cited in claim 3, "the chamber is generally annular" constitutes indefinite subject matter. The instant specification describes that the charging chamber 14 has an

annular space while the chamber where the rotor 18 is mounted within is cylindrical. It is not clear if applicant refers "the chamber" as cited in claim 3 as the annular space of the charging chamber or it is the same "the chamber" where the rotor is mounted as cited in claim 1. Therefore, appropriate correction is required. For the purpose of examination, "the chamber" as cited in claim 3 is interpreted as the same chamber as cited in claim 1, which is generally cylindrical as supported by the instant description.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-4, 7-11, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Altman et al (cited in IDS) in view of Ebert (U.S. 3,744,218).

11. Regarding claims 1 and 30, Altman et al disclose an electrostatically enhanced separator (EES) (ABSTRACT) and a two-stage EES with an ionizing unit 28 (Figure 8; col. 6, line 45-46). The two stage EES comprises an ionizing unit 28 for charging

particles. The ionizing unit 28 includes: (1) a cylindrical vessel 29 having an inlet 30 for admitting solid particles (Figure 8; col. 6, line 52-53) and an outlet 32 for discharging the charged particles (Figure 8; col. 7, line 1-2); (2) an discharge electrode 19 positioned at the center of vessel 29 (Figure 8; col. 6, line 57-58) for charging particles (col. 6, line 63-64); and (3) an electrostatically enhanced separator device 10 downstream of ionizing unit 28 (Figure 8, col. 6, line 45-47).

Altman indicates to incorporate gas jets 31 along the ionizing unit 28 axis to minimize corona suppression (col. 6, line 65-67), but does not teach the discharge electrode 19 for charging particles being rotatable. However, Ebert discloses an electrostatic cleaner for cleaning gas through ionization (ABSTRACT). Ebert teaches an electrostatic ionizing apparatus having an enclosure (Figure 1& 2; col. 2, line 60-65) and discharge electrode 24 which can rotate via a rotary base 32 (Figure 2; col. 3, line 18-24) and particles being charged by a corona discharge generated between the electrode 24 and the inside wall 14 (col. 3, line 35-42). Ebert further teaches that a more homogeneous high potential electrostatic field can be produced by rotating the discharge electrode, hence improving charging efficiency (col. 3, line 65-67). Therefore, it would be obvious for one having ordinary skill in the art to rotate the discharge electrode of Altman as suggested by Ebert in order to create homogenous high electrostatic field for better charging particles. As a result, the rotatable discharge electrode can serve as a rotor.

12. Regarding claim 2, Altman teaches that the discharge electrode 19 can be in the form of rod (col. 6, line 1-5), reads on the instant claim.

13. Regarding claim 3, the vessel 29 of Altaman is cylindrical (Figure 8; col. 6, line 53), reads on the instant claim.
14. Regarding claim 4, the outlet 32 of Altaman is positioned opposite to the inlet 31 (Figure 8).
15. Regarding claim 7, Ebert teaches a motor 36 to drive the rotary base 32 (Figure 2; col. 3, line 19-20), reads on the instant claim.
16. Regarding claim 8, the rotation speed is an operational parameter and it does not further limit the apparatus claim. Moreover, manner of operating the device does not differentiate apparatus claim from the prior art (see M.P.E.P. 2114).
17. Regarding claim 9, Altaman teaches that an electric field is generated between the discharge electrode 19 and the wall 17 (col. 6, line 58-59 & col. 5, line 18-22), reads on the instant claim.
18. Regarding claim 10, the electric field of Altaman is generated between the discharge electrode 19 and the wall 17 from a power supply (col. 6, line 58-59 & col. 5, line 18-22), reads on the instant claim.
19. Regarding claim 11, the two-stage EES of Altaman includes an ionizing unit 28 and individual EES 10 (Figure 8; col. 46-47), reads on the instant claim.
20. Regarding claims 31 and 32, the cylindrical vessel 29 of Altaman inherently has an outer wall (Figure 8). Altaman teaches that discharge electrode 19 may be in the form of rod (col. 6, line 1-5), while the vessel 29 is cylindrical (Figure 8; col. 6, line 53); thus the configurations of the discharge electrode 19 and the vessel 29 conform each other.

21. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Altman et al (cited in IDS) and Ebert (U.S. 3,744,218) as applied to claim 1 above, and further in view of Stencel et al (U.S. 6,498,313).

22. Regarding claim 5, Altman/Ebert fails to teach a partition projecting into the chamber. However, Stencel et al disclose an electrostatic separation apparatus. The apparatus comprises a chamber 38 including an electric field zone (Figure 3; col. 8, line 33-34) and a partition 50 telescoping into the chamber 38 (Figure 3; col. 11, line 15-18). Stencel further indicates that the partition 50 can adjustably vary the length of electric field zone in the chamber 38 for improving efficiency (col. 22-35). Therefore, it would be obvious for one having ordinary skill in the art to include a partition as suggested by Stencel in the chamber of Altman/Ebert in order to enhance charging/separation efficiency.

23. Regarding claim 6, Stencel also teaches that the partition 50 can move to adjust the length of electric field zone in the chamber 38 (Figure 3; col. 11, line 15-20 & col. 3, line 65-67), reads on the instant claim.

24. Claims 22, and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Altman et al (cited in IDS) in evidence of applicant admitted prior art (AAPA, page 2 line 2-14 of the instant specification).

25. Regarding claim 22, Altman et al disclose an electrostatically enhanced separator (EES) (ABSTRACT) and a two-stage EES with an ionizing unit 28 (Figure 8; col. 6, line 45-46). The two stage EES comprises an ionizing unit 28 for charging particles. The ionizing unit 28 includes: (1) a cylindrical vessel 29 having an inlet 30 for

admitting solid particles (Figure 8; col. 6, line 52-53) and an outlet 32 for discharging the charged particles (Figure 8; col. 7, line 1-2); and (2) an discharge electrode 19 positioned at the center of vessel 29 (Figure 8; col. 6, line 57-58) for charging particles (col. 6, line 63-64). As is evident by the teaching of AAPA, it is known in the art that frictional charging can be achieved by sliding or rubbing particles against a solid surface (page 2 line 2-14 of the instant specification). Thus, when the fluid flow containing particles is introduced into the ionizing vessel 29, particles rub against the electrode surface and particles will be frictionally charged. Therefore, the discharge electrode can be served as a means for frictionally charging particles when particles contact with the surface of the electrode.

26. Regarding claim 26, the rotation speed is an operational parameter and it does not further limit the apparatus claim. Moreover, manner of operating the device does not differentiate apparatus claim from the prior art (see M.P.E.P. 2114).

27. Regarding claim 27, Altaman teaches that an electric field is generated between the discharge electrode 19 and the wall 17 (col. 6, line 58-59 & col. 5, line 18-22), reads on the instant claim.

28. Regarding claim 28, the electric field of Altaman is generated between the discharge electrode 19 and the wall 17 from a power supply (col. 6, line 58-59 & col. 5, line 18-22), reads on the instant claim.

29. Regarding claim 29, the two-stage EES of Altaman includes an ionizing unit 28 and individual EES 10 (Figure 8; col. 46-47), reads on the instant claim.

30. Claim 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Altman et al (cited in IDS) as applied to claim 22 above, and further in view of Ebert (U.S. 3,744,218).

31. Regarding claim 23, Altman does not teach the discharge electrode 19 for charging particles being rotatable. However, Ebert discloses an electrostatic cleaner for cleaning gas through ionization (ABSTRACT). Ebert teaches an electrostatic ionizing apparatus having an enclosure (Figure 1& 2; col. 2, line 60-65) and discharge electrode 24 which can rotate via a rotary base 32 (Figure 2; col. 3, line 18-24) and particles being charged by a corona discharge generated between the electrode 24 and the inside wall 14 (col. 3, line 35-42). Ebert further teaches that a more homogeneous high potential electrostatic field can be produced by rotating the discharge electrode, hence improving charging efficiency (col. 3, line 65-67). Therefore, it would be obvious for one having ordinary skill in the art to rotate the discharge electrode of Altman as suggested by Ebert in order to create homogenous high electrostatic field for better charging particles. As a result, the rotatable discharge electrode can serve as a rotor

32. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Altman et al (cited in IDS) as applied to claim 22 above, and further in view of Stencel et al (U.S. 6,498,313).

33. Regarding claim 24, Altman fails to teach a partition projecting into the chamber. However, Stencel et al disclose an electrostatic separation apparatus. The apparatus comprises a chamber 38 including an electric field zone (Figure 3; col. 8, line 33-34) and a partition 50 telescoping into the chamber 38 (Figure 3; col. 11, line 15-18).

Stencel further indicates that the partition 50 can adjustably vary the length of electric field zone in the chamber 38 for improving efficiency (col. 22-35). Therefore, it would be obvious for one having ordinary skill in the art to include a partition as suggested by Stencel in the chamber of Altaman in order to enhance charging/separation efficiency.

34. Regarding claim 25, Stencel also teaches that the partition 50 can move to adjust the length of electric field zone in the chamber 38 Figure 3; col. 11, line 15-20 & col. 3, line 65-67), reads on the instant claim.

Conclusion

35. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuyu Tai whose telephone number is 571-270-1855. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/X. T./
Examiner, Art Unit 1795

5/8/2009

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795